

## **EOSDIS Core System Project**

# **Interface Control Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (ADC) for the ECS Project**

~~March~~ June 1996

Interface Control Document  
Between the EOSDIS Core System (ECS)  
and the National Oceanic and Atmospheric  
Administration (NOAA) Affiliated Data Center (ADC)  
for the ECS Project

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## CHANGE RECORD PAGE

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## Preface

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This document is a contract deliverable with an approval Code 1. It requires Government review and approval prior to acceptance and use. ~~As such, it does not require formal Government approval. However, the Government reserves the right to request changes within 45 days of the initial submittal.~~ Once approved, contractor changes to this document are handled in accordance with Class I and Class II change control requirements described in the EOS Configuration Management Plan, and changes to this document shall be made by document change notice (DCN) or by complete revision.

~~This document contains information pertaining to both Release A and Release B. For Release A content, this document is final. For Release B content, however, updates will be made through the Release B CDR time frame.~~ This document contains information pertaining to both Release A and Release B and is final for both releases.

Any questions should be addressed to:

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## Abstract

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This Interface Control Document (ICD) defines the functional and physical design of each interface between ECS and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (ADC). It includes the precise data contents and format for each interface. All modes (options) of data exchange for each interface are described as well as the conditions required for each mode or option. Additionally, data rates, duty cycles, error conditions, and error handling procedures for the transfer of data are included. The sequence of exchanges are completely described. Communications protocols or physical media are also detailed for each interface.

This document contains information pertaining to both Release A and Release B. ~~For Release A content, this document is final. For Release B content, however, updates will be made through the Release B CDR time frame.~~ For both Release A and Release B content, this document is final.

This ICD is consistent with the ECS/NOAA ADC interface requirements, as described in the NASA/NOAA Memoranda of Understanding (MOU), the Earth Science Data and Information System (ESDIS) Project -- Level 2 Requirements, the Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS Level 3 requirements), and the Interface Requirement Document (IRD) Between the ECS and the NOAA ADC.

**Keywords:** advertising, ancillary, browse, client, data, format, interface, interoperability, metadata, NESDIS, NOAA, request, SAA, search, user, V0, AM-1, TRMM, Release A, Release B

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# 1. Introduction

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## 1.1 Identification

This Interface Control Document (ICD), Contract Data Requirement List (CDRL) Item 029, whose requirements are specified in Data Item Description (DID) 209/SE1, is a required deliverable under the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS) Contract (NAS5-60000).

## 1.2 Scope

This ICD defines the system interfaces that exist between the ECS and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (ADC) to support ECS Releases A and B. Unless stated otherwise, all sections of this document apply to both Releases A and B. ~~The documentation in this ICD as it relates to Release A is final. Release B data is subject to further updates through the Release B CDR time frame. The documentation in this ICD as it relates to both Release A and Release B is final.~~

ECS Releases are keyed to mission support: Release Ir1 provides support to TRMM Early Interface Testing and Science Algorithm I&T. Release A provides support to TRMM Science Operations and TRMM Ground Systems Certification Testing. Release A also provides the functional capabilities needed to support early ESDIS Ground System Testing for the EOS AM-1 and Landsat 7 missions. Release B provides support to EOS AM-1 Mission Operations and Science Operations, and it provides support to ESDIS Ground System Certification Testing for the EOS AM-1 and Landsat 7 missions. Release B also provides archive and distribution services for the Landsat 7 mission. Releases C & D provide evolutionary enhancements to the ECS services provided in the earlier Releases.

With respect to NOAA, the interfaces support ECS acquisition of ancillary data from the NOAA National Environmental Satellite, Data, and Information Service (NESDIS), ECS user access to the NESDIS Satellite Active Archive (SAA) (i.e., one-way interoperability), and the identification of data located at the NESDIS Data Centers. In addition, ECS acquires data sets from the NOAA ~~National Meteorological Center (NMC)~~ National Center for Environmental Prediction (NCEP) via the Goddard Space Flight Center (GSFC) Distributed Active Archive Center (DAAC). This interface is described in the ICD Between ECS and the GSFC DAAC. ECS also acquires ~~Global Precipitation Climatology Project (GPCP) Satellite Derived Monthly Rainfall data~~, available from NOAA, via the Marshall Space Flight Center (MSFC) DAAC. ~~This interface is described in the ICD Between ECS and the MSFC DAAC. The MSFC DAAC also receives Global Precipitation Index (GPI) data from NOAA, however ECS has not identified any need for this data at this time.~~

ECS will be capable of receiving service requests from the NOAA SAA (full two-way interoperability) via V0 protocols, as described in the ICD Between the ECS and V0 System for

Interoperability, at Release A. However, NOAA does not plan to implement two way interoperability until Release C.

The Earth Science Data and Information System (ESDIS) Project has joint responsibility with NOAA for the development and maintenance of this ICD. Any changes in the interface must be agreed to by the relevant participating parties. This ICD will be approved under the signatures of the ESDIS Project Manager and the Director, NOAA NESDIS Office of Satellite Data Processing and Distribution.

This document reflects the technical baseline maintained by the ECS Configuration Control Board in accordance with ECS technical direction (see Section 2.2). ~~This document reflects the August 23, 1995 Technical Baseline maintained by the contractor configuration control board in accordance with ECS Technical Direction No. 11 dated December 6, 1994.~~

### 1.3 Purpose and Objectives

This document is written to formalize the interpretation and general understanding of the interface between the ECS and the NOAA. This document provides clarification and elaboration of the ECS-NOAA ADC interfaces to the extent necessary to assure hardware, software, and operational service compatibility within the end-to-end system.

This document provides a point of mutual control of external interface definitions.

### 1.4 Status and Schedule

This version of the ICD is being prepared in order to baseline the Release A and Release B content. This ICD will be submitted to the ESDIS CCB as a Configuration Control Board (CCB) approval Code 1 document. This document is final with respect to its Release A and Release B content. ~~This document is final with respect to its Release A content. The Release B content will be updated for the ECS Release B CDR to provide any additional format and content necessary.~~

At the Government's option, this document may be designated to be under full Government CCB control. Changes may be submitted for consideration by Contractor and Government CCBs under the normal change process at any time.

Within this document are some interfaces that have associated TBRs, TBSs and/or TBDs. A table providing a Work-off Plan is in Appendix A. This plan provides the following information:

- a. ICD Interface Issue Number
- b. ICD Reference Paragraph
- c. Issue Priority
- d. ICD Issue Description
- e. Work-off Plan
- f. Projected Date of Issue Resolution

g. Risk Assessment**1.5 Organization**

This document is organized in 5 sections plus appendices. Section 1 provides information regarding the identification, scope, purpose and objectives, and organization of this document. Section 2 contains information about documentation relevant to this ICD, including parent, applicable, and information documents. Section 3 provides an overview of the interfaces, with a brief description of the elements involved. Section 4 provides an overview of the data exchange approaches. Section 5 contains a description of each data exchange between the ECS and NOAA, the data transfer method, and descriptions of the data format. A Work-off plan is presented in Appendix A. An acronym list is in Appendix AB.



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## 2. Related Documentation

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### 2.1 Parent Document

The following documents are the parents from which this document's scope and content are derived:

193-208-SE1-001	Methodology for Definition of External Interfaces for the ECS Project
301-CD-002-003	System Implementation Plan for the ECS Project
304-CD-002-002	Science Data Processing Segment (SDPS) Requirements Specification for the ECS Project
304-CD-003-002	Communications and System Management Segment (CSMS) Requirements Specification for the ECS Project
<u>210-TP-001-006</u>	<u>Technical Baseline for the ECS Project</u>
423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the EOSDIS Core System (ECS)
<u>505-10-20</u>	<u>System Interface Control Plan for the Earth Science Data and Information System (ESDIS) Project</u>
505-41-19	Goddard Space Flight Center, Interface Requirements Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (ADC)
none	Memorandum of Understanding Between the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration for Earth Observations Remotely Sensed Data Processing, Distribution, Archiving, and Related Science Support
<u>none</u>	<u>Goddard Space Flight Center, ECS Technical Direction No. 11, "PDR Technical Baseline," 12/6/94</u>

### 2.2 Applicable Documents

The following documents are referenced herein or are directly applicable to this document. In the event of conflict between any of these documents and this document, this document shall take precedence. Internet links cannot be guaranteed for accuracy or currency.

209-CD-008-004 <del>2</del>	Interface Control Document Between EOSDIS Core System (ECS) and the Goddard Space Flight Center (GSFC) Distributed Active Archive Center (DAAC)
<del>209-CD-009-002</del>	<del>Interface Control Document Between EOSDIS Core System (ECS) and the Marshall Space Flight Center (MSFC) Distributed Active Archive Center (DAAC)</del>
209-CD-010-003 <del>4</del>	Interface Control Document Between the EOSDIS Core System (ECS) and the Langley Research Center (LaRC) Distributed Active Archive Center (DAAC)
305-CD-004-001	Overview of Release A SDPS/CSMS System Design Specification for the ECS Project
305-CD-020-002 <del>4</del>	Overview of Release B SDPS/CSMS System Design Specification for the ECS Project
<del>209-CD-011-003</del>	<del>505-41-37</del> Interface Control Document Between EOSDIS Core System (ECS) and the Version 0 System for Interoperability
541-032	Goddard Space Flight Center, Interface Control Document Between the EOSDIS Backbone Network (EBnet) and the Distributed Active Archive Center (DAAC)
<u>none</u>	<u>NOAA-EBnet As-Built documentation</u>
none	Hughes STX Corporation; NOAA/NESDIS Master Map Microwave Derived Products (EDR) Interface Control Document
none	Langley Research Center, Clouds and the Earth's Radiant Energy System (CERES) Data Management System Interface Requirements Document
none	Jet Propulsion Laboratory, Planetary Data System Standards Reference, Version 3.1, 8/94 (WWW access: <a href="http://stardust.jpl.nasa.gov/stdref/stdref.htm">http://stardust.jpl.nasa.gov/stdref/stdref.htm</a> )
SASC-T-5-5085-028-85	National Oceanic and Atmospheric Administration, National Environmental Satellite Data and Information Service, Solar Backscattered Ultraviolet Radiometer Version 2 (SBUV/2) User's Guide, Revision 3
none	National Oceanic and Atmospheric Administration, National Environmental Satellite Data and Information Service, Environmental Products Data Set Format Description Notebook, NOAA/NESDIS Office of Satellite Data Processing and Distribution., J. Sapper

none	National Oceanic and Atmospheric Administration, National Environmental Satellite Data and Information Service, Global Vegetation Index User's Guide, 12/94
none	National Oceanic and Atmospheric Administration, National Environmental Satellite Data and Information Service, NOAA Polar Orbiter Data Users Guide
RFC 791	Internet Protocols, Internet Standards, DARPA (WWW access: <a href="gopher://ds.internic.net:70/">gopher://ds.internic.net:70/</a> )
RFC 793	Transmission Control Protocol, Internet Standards, DARPA (WWW access: <a href="gopher://ds.internic.net:70/">gopher://ds.internic.net:70/</a> )
RFC 959	File Transfer Protocol, Internet Standards, J. Postel, J. Reynolds (WWW access: <a href="gopher://ds.internic.net:70/">gopher://ds.internic.net:70/</a> )
none	HyperText Markup Language Specification Version 3.0, Internet Draft, D. Raggett (WWW access: <a href="http://192.6.10.21/people/dsr/html/CoverPage.html">http://192.6.10.21/people/dsr/html/CoverPage.html</a> )
none	HyperText Transfer Protocol Version 1.0, Internet Draft, T. Berners-Lee, R. Fielding, H. Frystyk (WWW access: <a href="http://www.w3.org/hypertext/WWW/Protocols/Overview.html">http://www.w3.org/hypertext/WWW/Protocols/Overview.html</a> ) 6/95

## 2.3 Information Documents

The following documents (or in some cases, Internet links to documents/information), although not directly applicable, amplify or clarify the information presented in this document. These references are not binding on this document. Internet links cannot be guaranteed for accuracy or currency.

none	Hughes STX Corporation; Satellite Active Archive NOAA-SAA IMS Server Design Specification, Version 2.0; 5/6/94
none	Hughes STX Corporation; Version 0 Information Management System User's Manual (current version available through WWW access: <a href="http://harp.gsfc.nasa.gov:1729/eosdis_home.html">http://harp.gsfc.nasa.gov:1729/eosdis_home.html</a> )
none	Committee on Earth Observations Satellites Working Group on Data; Guidelines for an International Interoperable Catalogue System: Catalogue Subgroup Issue 2.1
none	NOAA's NESDIS World Wide Web Home Page (WWW access: <a href="http://ns.noaa.gov/NESDIS/NESDIS_Home.html">http://ns.noaa.gov/NESDIS/NESDIS_Home.html</a> )
none	Jamsa Press; Kris Jamsa PhD and Ken Cope; Internet Programming, 1995

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### 3. Interface Overview

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The ECS and the NOAA ADC will coordinate to allow the exchange of data and information. The ECS will be interoperable with the NOAA so that an ECS user will be able to view the data holdings of, and order data from, NOAA, and vice versa. In addition, NOAA will provide mutually-agreed upon ancillary data sets to the ECS to support ECS standard product generation.

Two NOAA organizations will interface with ECS: the National Environmental Satellite, Data, and Information Service (NESDIS) and the National Center for Environmental Prediction (NCEP). ~~National Meteorological Center (NMC)~~.

NESDIS manages the U.S. operational civil environmental satellite systems as well as global data bases for meteorology, oceanography, solid-earth geophysics, and solar-terrestrial sciences. It develops and supplies environmental data and information products and services for numerous users. NESDIS maintains data in the Satellite Active Archive (SAA), operated by Office of Satellite Data Processing and Distribution (OSDPD), and three data centers: the National Climatic Data Center (NCDC), the National Oceanographic Data Center (NODC), and the National Geophysical Data Center (NGDC). There is a direct interface between NESDIS and ECS. That interface is described in this document.

NOAA's NCEP NMC, part of the National Weather Service, produces, processes, handles, and distributes meteorological and oceanographic information to users. The NCEP NMC produces weather summaries, and extended and medium-range forecasts. The NCEP NMC interprets satellite information, develops and produces oceanographic products, provides weather support for special aerospace and satellite operations, and performs research and development to improve its satellite operations. ECS will acquire data sets from the NCEP via the GSFC DAAC. The interface between the GSFC DAAC and ECS for transfer of NCEP data is described in the ICD Between ECS and the GSFC DAAC.

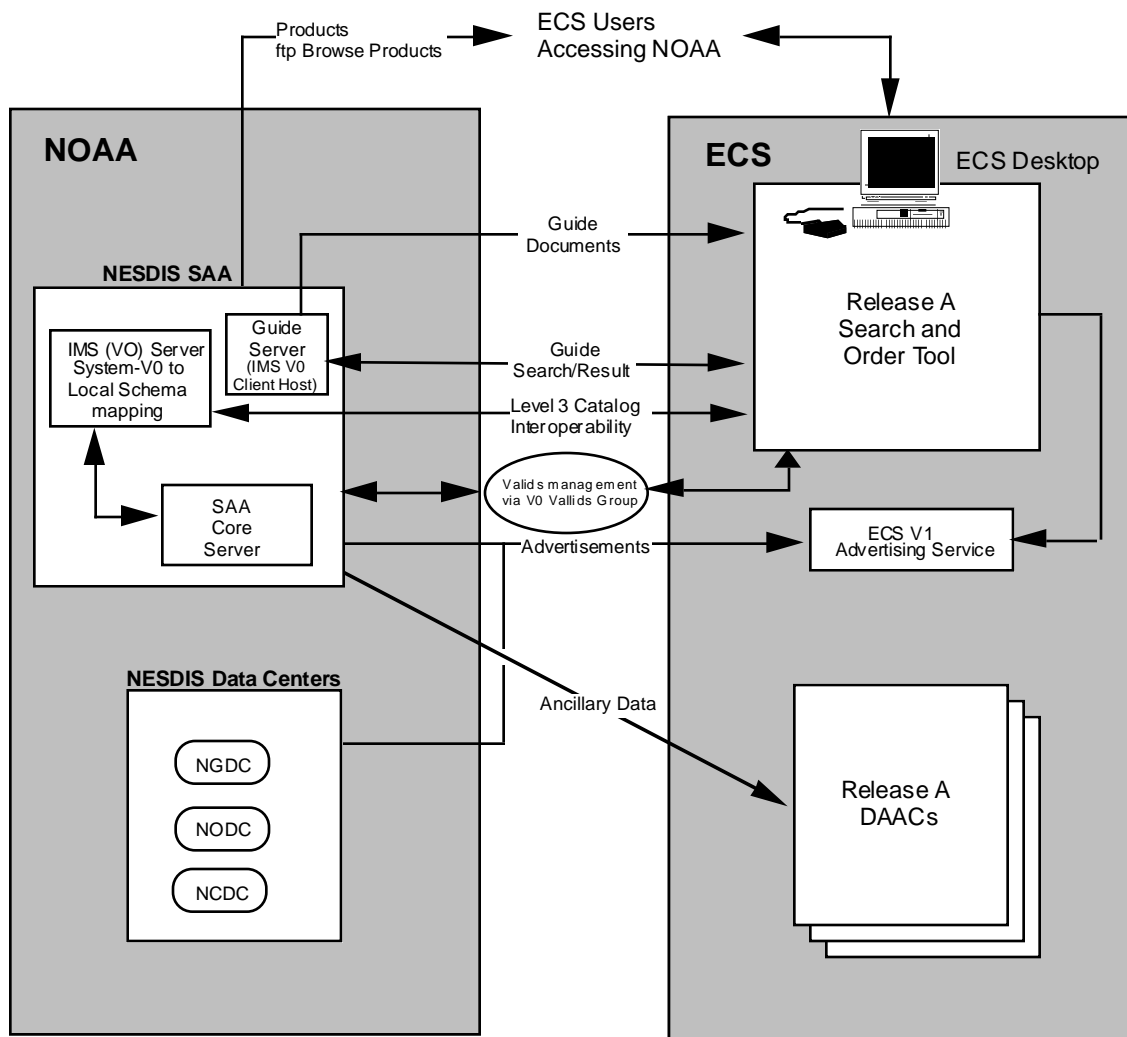
ECS supports the planning, scheduling, and control of U.S. EOS spacecraft and instruments. In addition to fully supporting the EOS mission, the ECS provides information management and data archive and distribution functions for NASA Earth science flight missions, NASA instruments flown on non-NASA spacecraft, and for other NASA-held Earth science data.

The ECS system will become operational in distinct phases, called Releases. The initial release, Release A, incorporates a copy of the EOSDIS Version 0 (V0) IMS Client as the user interface to the ECS data holding. This client is called the Release A Search and Order Tool. At Release A, the ECS interface with NOAA supports two distinct functions. The first is to allow ECS users to search, browse, and order data resident in the NESDIS SAA and to locate data advertised by the NESDIS Data Centers. The second is to support timely ECS access to NOAA data sets which are required as ancillary data for the generation of ECS standard products.

For ECS Release B, an advanced Client Subsystem replaces the EOSDIS V0 IMS Client as the ECS user interface. This Client will not directly interface with the NESDIS SAA. Instead ECS will provide a Gateway that will relay requests from the ECS Client to the NESDIS SAA.

Responses sent from the NESDIS SAA will likewise pass through the Gateway on their way to the Client. The NESDIS view of this interface will not change from that of Release A. ECS will continue to access NOAA data sets required as ancillary data for the generation of ECS standard products.

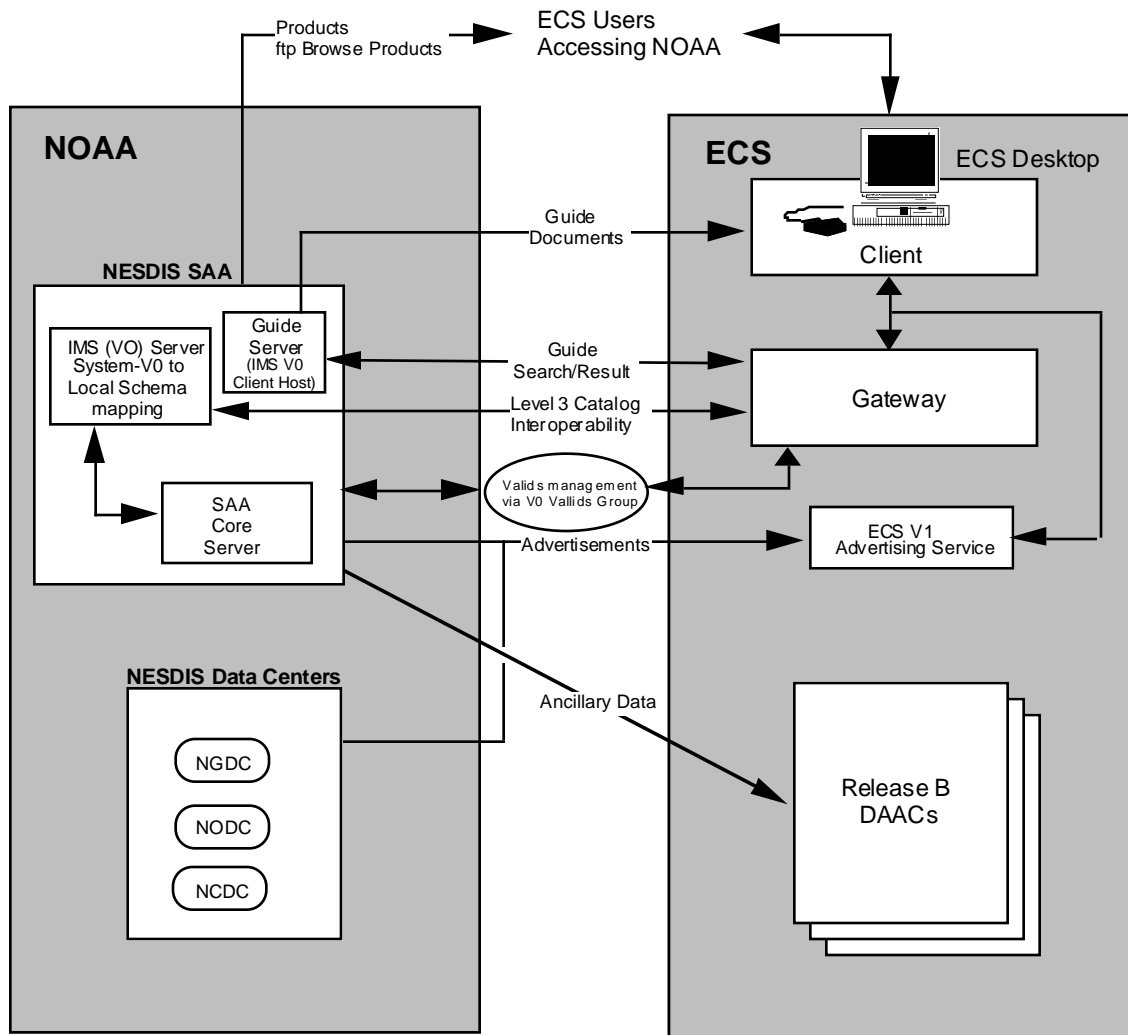
Figure 3-1 depicts the operational context of the interfaces between the ECS and the NOAA at Release A. ~~(Figure 3-1 has been modified since the Release A delivery of this document.)~~ Through the Release A Search and Order Tool and the existing SAA Information Management System (IMS) Server, ECS will provide Level 3 catalog interoperability (as defined by the Committee on Earth Observations Satellites) from ECS to the SAA. Both the SAA and the other NESDIS Data Centers will be able to advertise the data and services that they provide via the ECS Advertising Service. ECS users will be able to search the Advertising Service and link (transfer the user's session) directly to the advertised services. The SAA will provide dependent valids information to the V0 Valid Group which will define the dependent valids to be incorporated in the Release A Search and Order Tool. ECS will also receive several ancillary data products from the NESDIS SAA on a regular basis.



**Figure 3-1. ECS/NOAA Interface Context Diagram for Release A**

Figure 3-2 depicts the operational context of the interfaces between the ECS and the NOAA at Release B. Through the Gateway and the existing SAA IMS Server, ECS will continue to provide Level 3 catalog interoperability from ECS to the SAA. Both the SAA and the other NESDIS Data Centers will continue to be able to advertise the data and services that they provide via the ECS Advertising Service. ECS users will be able to search the Advertising Service and link (transfer the user's session) directly to the advertised services. The SAA will continue to provide dependent valids information. In Release B, the dependent valids information will be incorporated into the V0 Gateway. ECS will continue to receive several ancillary data products from the NESDIS SAA on a regular basis.





**Figure 3-2. ECS/NOAA Interface Context Diagram for Release B**

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## 4. Data Exchange Infrastructure

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This section addresses the applicable data exchange protocols for handling the functions discussed in Section 3. Specifically, this section will address the protocols to 1) allow the ECS Client to search, browse and order data resident in the NESDIS SAA, including support for both catalog interoperability and the Advertising Service, and 2) the electronic retrieval of NESDIS ancillary data products to ECS. The relevant protocols from the various layers of the Open System Interconnection Reference Model are discussed. These layers include the physical network topology, the datalink and physical services, the network services, transport services, and the higher level services that support the session, presentation, and application protocols.

### 4.1 Communications/Protocol Interfaces

#### 4.1.1 Interoperability and Advertising Service

The interface that ECS will use to perform catalog interoperability and to access and order SAA products requested by ECS users at Release A is already built and operational. The Release A Search and Order Tool will incorporate the existing EOSDIS V0 IMS Client as the ECS user interface. The SAA IMS Server is the link between the Release A Search and Order Tool and the SAA Core Server.

In Release B, the Release A Search and Order Tool will be replaced by a combination of the advanced ECS Client and the V0 Gateway. Functionally, this interface will look and operate the same as during Release A. The only changes will be internal to ECS.

The SAA IMS Server is maintained by the NOAA NESDIS Office of Satellite Data Processing and Distribution (OSDPD) in Suitland, Maryland. The connection between the ECS and the SAA IMS Server is made using the available internet connections.

The SAA Guide Server is maintained by NOAA NESDIS OSDPD on a combined Wide Area Information Server (WAIS) and World Wide Web server that is integrated with the SAA IMS V0 Client host located at NESDIS. The connection between the ECS and the SAA IMS Server is made using the available internet connections.

The interface that NOAA will use to submit advertisements to ECS is the World Wide Web. A NOAA operator will access an ECS Advertising Server to submit or modify advertisements. The ECS Advertising Server is maintained by ECS. The connection between the operator's Web browser and the Advertising Server is made using the available internet connections.

#### 4.1.2 Ancillary Data Transfer

At Release A and Release B, ancillary data will be retrieved from NESDIS by the ECS system within the Langley Research Center (LaRC) DAAC. At Release B, ancillary data will also be retrieved from NESDIS by the ECS system within the National Snow and Ice Data Center

~~(NSIDC) DAAC. The interface between the ECS at these the LARC DAACs and NESDIS is currently provided by EBnet and documented by the Interface Control Document Between the EOSDIS Backbone Network (EBnet) and the Distributed Active Archive Center (DAAC) and the NOAA-EBnet As-Built documentation. TBD-7 documentation.~~

## 4.2 Physical/Datalink Services

### 4.2.1 Interoperability and Advertising Service

The connection between the ECS and the SAA IMS Server is made using the physical/datalink services of the available internet connections.

The connection between the ECS and the SAA Guide Server is made using the physical/datalink services of the available internet connections.

The connection between the operator's Web browser and the Advertising Server is made using the physical/datalink services of the available internet connections.

### 4.2.2 Ancillary Data Transfer

The interface between the ECS system and NESDIS to support ancillary data transfer is currently provided by EBnet and is documented in the Interface Control Document Between the EOSDIS Backbone Network (EBnet) and the Distributed Active Archive Center (DAAC) and the NOAA-EBnet As-Built documentation. ~~TBD-7 documentation.~~

## 4.3 Network Layer Services

The network layer provides the functional and procedural means to exchange network data units between transport entities over network connections, both for connection-mode and connections less-mode communications. It relieves the transport layer from concern of all routing and relay operations associated with network connection. The basic function of the network layer is to provide the transparent transfer of data between transport entities.

The Internet Protocol (IP), specified in RFC 791 is the network protocol that ECS and NOAA support based on its dominance in industry usage and wide-community support. As part of IP support, Internet Control Message Protocol and Address Resolution Protocol will also be supported. As the Internet Engineering Task Force specified new generation IP becomes available for deployment, it will be supported by ECS networks.

This protocol is used by the interoperability, including Guide; advertising service; and ancillary data transfer interfaces. ~~This protocol is used by the interoperability, advertising service, and ancillary data transfer interfaces.~~

## 4.4 Transport Services

ECS and NOAA provide IP based connection-oriented service implemented using Transmission Control Protocol (TCP). TCP, specified in RFC 793, is a connection-oriented, end-to-end

reliable protocol designed to fit into a layered hierarchy of protocols which support multi-network applications.

This protocol is used by the interoperability, including Guide; advertising service; and ancillary data transfer interfaces. ~~This protocol is used by the interoperability, advertising service, and ancillary data transfer interfaces.~~

## **4.5 Session, Presentation, and Application Protocols**

### **4.5.1 Object Description Language (ODL)**

Communication between the ECS and the SAA IMS Server is achieved using the same message protocols as used in the existing V0 system ~~for Interoperability~~. This is the Object Description Language (ODL), a language developed by JPL to encode data labels for the Planetary Data System and other NASA data systems. This language is defined in the Planetary Data System Standards Reference. The ODL used between ECS and the SAA IMS Server is described in the ICD Between the ECS and V0 System for Interoperability. Full ODL specification is defined in the Planetary Data System Standards Reference.

The V0 message protocols provide error handling by embedding a status code, which can include error information, in the results returned for a query. This is described in the ICD Between the ECS and V0 System for Interoperability.

### **4.5.2 HyperText Markup Language (HTML)/HyperText Transfer Protocol (HTTP)**

ECS and NOAA will use HyperText Markup Language (HTML), Version 3.0 protocols as the interface for submitting and modifying advertisements. HTML will also be used for accessing the NOAA Guide data. HTML is a simple markup language used to create hypertext documents that are portable from one platform to another. HTML documents are Standard Generalized Markup Language documents with generic semantics that are appropriate for representing information from a wide range of applications. The protocols for HTML are defined in HyperText Markup Language Specification Version 3.0. HTML, Version 3.0 is backwards compatible with HTML 2.0.

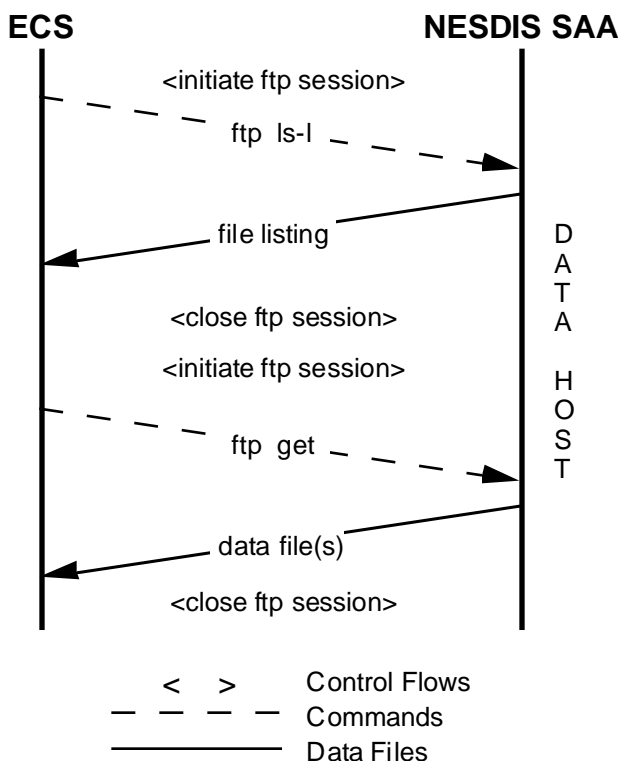
The HyperText Transfer Protocol (HTTP) is an application-level protocol that will be used to transfer advertisements created using the HTML. HTTP will also be used to access the SAA Guide Server. The basic version of HTTP is defined in the HyperText Transfer Protocol, Version 1.0, Internet-Draft. This document also defines status codes, which can include error information, that are returned as a result of transferring information via HTTP.

### **4.5.3 File Transfer Protocol (ftp)**

ECS will utilize a File Transfer Protocol (ftp) interface to identify and acquire the ancillary data from NESDIS. ECS will use this interface to periodically poll the NESDIS Data Delivery Server to identify updated ancillary data. When updated data is identified, ECS will retrieve this data.

NESDIS will provide the data specified in Section 5.2.3 to ECS. NESDIS will store the data on its Data Delivery Server in a separate subdirectory for each data set required. The granules remain in the data set subdirectory on the Data Delivery Server for a period of time determined by NOAA operations. The specific name and location of these directories will be coordinated prior to initiation of these operations.

The identification and retrieval of data granules from the NESDIS will involve the three step process depicted in Figure 4-1. First, ECS establishes a ftp session to the appropriate subdirectory for a given data set. Second, it obtains a long listing of files that reside in this directory. The file listing shall include information on the file name, file creation date and time, and file size. Once this information is received, ECS closes the ftp session and determines if any new data are present. If any new data are present then ECS prepares to ingest the data. The format of the NOAA response to the "ls-l" command is TBD-10.



**Figure 4-1. Polling Interface**

Once ECS is ready to retrieve the data files, ECS establishes a new ftp session to the subdirectory and issues multiple ftp *get* commands to retrieve each file identified as being new based on the file listing from the original session. ~~If the ingest of any of the files results in an error and is unsuccessful, the ftp *get* command would be repeated up to an operator tunable number of times. When all the files have been retrieved, ECS closes the ftp session.~~

If the ingest of any of the files results in an error and is unsuccessful, the ftp *get* command would be repeated up to an operator tunable number of times. When all the files have been retrieved, ECS closes the ftp session. ECS repeats this process for each subdirectory to which SAA stages data for ECS. ~~TBD-9 steps will be taken to ensure that files are not ingested while they are being updated.~~ The data files on the NOAA server cannot be modified or deleted by NOAA while they are being ftp'd by ECS. Also, a file on the NOAA server is not available for ftp until it is completely written.

File Transfer Protocol (ftp) used by ECS to access the NESDIS system to retrieve the ancillary data is detailed in RFC 959. This document also defines the ftp error handling features.

The SAA is a public server and ECS will access the data via anonymous ftp. There are no additional security requirements on this interface.

#### **4.5.4 Wide Area Information Server**

WAIS will be used to search the SAA Guide. WAIS is a networked information retrieval system that enables client applications to retrieve text or multimedia documents stored on a server. A modified version of WAIS 0.202 is used. Version 0.202 has been modified so the "equal sign" (=) and the "underscore symbol" (\_) are recognized as alphabetic characters.

The client application submits a request for documents using keywords. The server performs a search of a full text index for the documents and returns a list of documents using those keywords. The client may then request the server to send a copy of any of the documents.

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## 5. Data Flow Descriptions

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### 5.1 General

This section contains an overview of each data interface between ECS and the NOAA. Each data flow in the interface is identified and defined, including the functional purpose of the flow, the system that initiates the flow, the format and the contents of the flow.

### 5.2 ECS/SAA Data Flows

#### 5.2.1 ECS to SAA Interoperability Data Flows

As previously described, the Release A Search and Order Tool will reuse the existing EOSDIS V0 IMS Client as the ECS user interface. Likewise, the V0 Gateway will act as a proxy of the EOSDIS V0 IMS Client for those using the advanced ECS Client in Release B. The V0 System ~~for Interoperability~~ currently provides users the ability to search the SAA Inventory and Guide. Users can also submit Browse Requests, and Product Requests. ECS users will continue to have these capabilities through Releases A and B.

The SAA IMS Server is the link between the ECS and the SAA Core Server. This SAA IMS Server translates messages from the V0 ODL message format to the SAA message format and passes the message to the SAA Core Server. It also translates responses from the SAA Core Server into ODL for transmission to the ECS.

User authentication information is included in a field within the Inventory Search Request, the Browse Request, and the Product Request. This is true for both Release A and B. No separate user authentication message will exist. The details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

Cost estimate data is acquired dynamically via the Inventory Search Request in both Release A and B. The cost estimate data is returned in a field of the Inventory Search Result. The cost estimate data is maintained on the NESDIS SAA IMS V0 Server. The details of this interface are documented in the Inventory Search Request and Inventory Search Result documentation in the ICD Between the ECS and the V0 System for Interoperability.

In addition to the interoperability functions provided by the V0 protocols, ECS users will be able to search Advertising Information placed in the ECS Advertising System by NOAA that describes data and service available from NOAA.

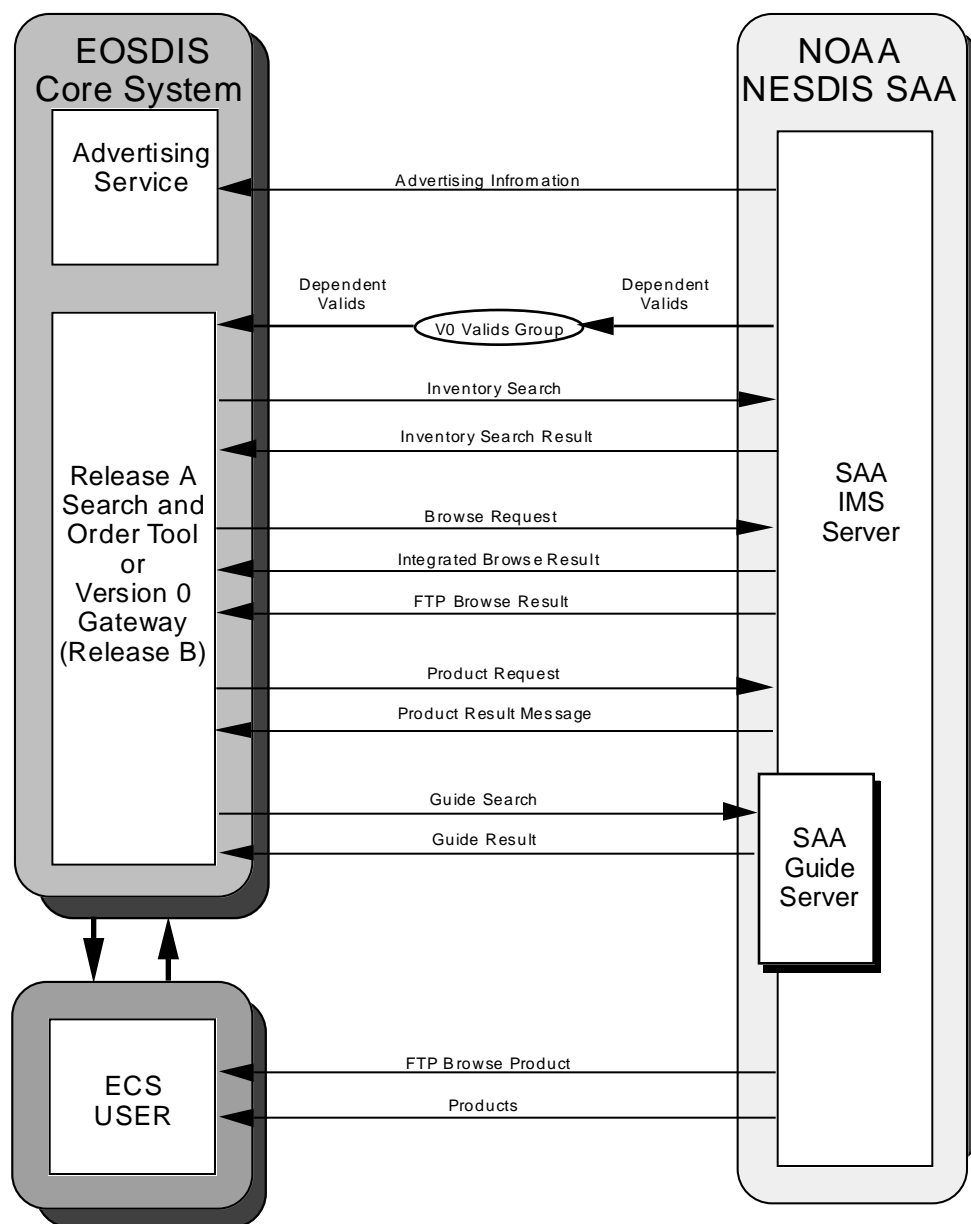
The ECS to SAA data flows supporting interoperability are shown in Figure 5-1.

#### 5.2.1.1 Advertising Information

The Advertising Information is sent from the SAA to the ECS. Its purpose is to provide information sufficient to allow an ECS user to locate data and services located at the SAA. The

ECS Advertising Service will utilize HTML protocols and will accept advertisements via an interactive HTML-form based interface.

An SAA operator will be able to initiate an ECS Advertising Service session and link to the Advertisement Submission Form. From this form, the operator will be able to submit new advertisements or modify existing advertisements. The operator will provide information such as the description of the product, service, or service provider being advertised and information on access restriction, pricing, and copyright limitation. Product descriptions will include items such as temporal and geographic coverage, processing level, sensor, and parameter inputs. The name,



**Figure 5-1. ECS to SAA Interoperability Data Flows**

address, phone numbers, and e-mail address to contact regarding the advertisement will also be entered. The operator may also submit graphical icons or logos, and Universal Reference Location (URL) links.

When the operator presses the submit button, the contents of the form will be assembled into a data block of the form:

action?name=value&name=value&name=value

where 'name' is the title of an input field on the form and 'value' is the information entered. This data block is posted to the Advertising Service URL where it is processed.

ECS will receive the advertisement and, after reviewing and approving the advertisement, will send the SAA operator via e-mail either a confirmation that the advertisement has been posted to the Advertising Service or a statement that the advertisement has been rejected and the reason for the rejection.

#### **5.2.1.2 Deleted**

#### **5.2.1.3 Guide Query/Results**

The purpose of the guide query is to retrieve SAA Guide documents. The SAA Guide was developed using the same HTML protocols as the V0 Guide and stored on the SAA Guide Server.

In Release A, the guide queries will be sent from the Release A Search and Order Tool to the SAA Guide Server. Guide results are returned to the Release A Search and Order Tool. The SAA Guide documents are then accessed directly from the Release A Search and Order Tool using HTTP. The details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

In Release B, the guide queries will be sent from the V0 Gateway to the SAA Guide Server. Guide results are returned to the V0 Gateway which provides them to the ECS Client. The SAA Guide documents are then accessed directly from the ECS Client using HTTP ~~(TBR-5)~~. The details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

#### **5.2.1.4 Inventory Search Query**

The Inventory Search Query is sent from the ECS to the SAA at an ECS user's initiation. Its purpose is to search query the SAA inventory.

In Release A, the Inventory Search Query is sent from the Release A Search and Order Tool to the SAA IMS Server.

In Release B, the Inventory Search Query is sent from the V0 Gateway to the SAA IMS Server.

This interface is identical to the existing V0 interface for Inventory searching and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

### **5.2.1.5 Inventory Search Query Result**

The Inventory Search Query Result is sent from the SAA to the ECS in response to an Inventory Search Query. Its purpose is to return metadata, including cost estimate data, describing the granules meeting the Inventory Search's Query's search criteria.

In Release A, the Inventory Search Query Result is sent from the SAA IMS Server to the Release A Search and Order Tool.

In Release B, the Inventory Search Query Result is sent from the SAA IMS Server to the V0 Gateway.

This interface is identical to the existing V0 interface for Inventory search results and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

### **5.2.1.6 Browse Request**

The Browse Request is sent from the ECS to the SAA at an ECS user's initiation. Its purpose is to obtain browse information for selected SAA products. The user may specify either an integrated or ftp browse.

In Release A, the Browse Request is sent from the Release A Search and Order Tool to the SAA IMS Server.

In Release B, the Browse Request is sent from the V0 Gateway to the SAA IMS Server.

This interface is identical to the existing V0 interface for Browse Requests and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

### **5.2.1.7 Browse Result**

#### **5.2.1.7.1 Integrated Browse Result**

The Integrated Browse Result is sent from the SAA to the ECS. Its purpose is to deliver an SAA browse product in response to a Browse Request specifying an Integrated Browse Result.

In Release A, the Integrated Browse Result is sent from the SAA IMS Server to the Release A Search and Order Tool.

In Release B, the Integrated Browse Result is sent from the SAA IMS Server to the V0 Gateway.

This interface is identical to the existing V0 interface for Integrated Browse Results and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

#### **5.2.1.7.2 FTP Browse Result**

The FTP Browse Result is sent from the SAA to the ECS. Its purpose is to return to the browse product requester information enabling him to retrieve his browse product from the ftp site where

it has been staged. The FTP Browse Result is sent in response to a Browse Request specifying an FTP Browse Result.

In Release A, the FTP Browse Result is sent from the SAA IMS Server to the Release A Search and Order Tool.

In Release B, the FTP Browse Result is sent from the SAA IMS Server to the V0 Gateway.

This interface is identical to the existing V0 interface for FTP Browse Results and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

#### **5.2.1.8 ~~Cost Estimate Request/Cost Estimate Deleted~~**

~~The purpose of this interface is to provide the user with information on the cost of products that may be requested.~~

~~In both Release A and Release B cost estimate data is acquired dynamically via an Inventory Search Request. The cost estimate data is returned in a field of the Inventory Search Result. The cost estimate data is maintained on the NESDIS SAA IMS V0 Server.~~

~~The details of this interface are documented in the Inventory Search Request and Inventory Search Result documentation in the ICD Between the ECS and the V0 System for Interoperability.~~

#### **5.2.1.9 Product Request/Product Result**

The Product Request is sent from the ECS to the SAA at an ECS user's initiation. Its purpose is to place an order for selected SAA products.

In Release A, the Product Request is sent from the Release A Search and Order Tool to the SAA IMS Server.

In Release B, the Product Request is sent from the V0 Gateway to the SAA IMS Server.

This interface is identical to the existing V0 interface for Product Requests and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

The SAA will respond with a Product Result message and by delivering the requested product directly to the user. The Product Result provides a confirmation of the SAA's receipt of the Product Request and provides contact information for further inquiries.

In Release A, the Product Result is sent from the SAA IMS Server to the Release A Search and Order Tool.

In Release B, the Product Result is sent from the SAA IMS Server to the V0 Gateway.

This interface is identical to the existing V0 interface for Product Results and the details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

The user may use the information provided as part of the Product Result message to contact NOAA directly to obtain product delivery status information. SAA products are delivered directly to the requester; the ECS is not involved.

#### **5.2.1.10 Product Delivery Status Request/Product Delivery Status Deleted**

~~The user may use the information provided as part of the Product Result message to contact NOAA directly to obtain product delivery status information.~~

#### **5.2.1.11 Dependent Valid Information**

The purpose of the dependent valids information is to provide key metadata information about the SAA data to the Release A Search and Order Tool. The Release A Search and Order Tool uses this information to provide prompts to the user during the formulation of a query. In Release A, the dependent valids information from the SAA is updated in the same manner as the dependent valids information from the other V0 Servers. Specifically, the SAA will continue to provide dependent valids information to the V0 Valid Group personnel. The V0 Valid Group will define the dependent valids to be incorporated in the Release A Search and Order Tool.

During Release B, ECS will no longer employ the Release A Search and Order Tool, but ECS will need to continue to support the maintenance of dependent valids information to provide interoperability with the V0 system for Interoperability. In Release B, the V0 dependent valids information will be accessed via the V0 Gateway.

The details of this interface are documented in the ICD Between the ECS and V0 System for Interoperability.

### **5.2.2 SAA to ECS Interoperability Data Flows**

ECS will be capable of receiving service requests from the NOAA SAA (full two-way interoperability) via V0 protocols, as described in the ICD Between the ECS and V0 System for Interoperability, at Release A. However, NOAA does not plan to implement two way interoperability until Release C.

### **5.2.3 Ancillary Data Transfer**

As described in Section 4.5.3, ECS will utilize a ftp interface to identify and acquire the ancillary data required from NESDIS to support ECS standard product generation. The ancillary data that NESDIS will stage for ECS to retrieve are described below. The ancillary data selection was derived from the Clouds and the Earth's Radiant Energy System (CERES) Data Management System IRD and the IRD Between ECS and the NOAA ADC. This section identifies the requirements for ancillary data products in the Release A and Release B of ECS. ~~This selection identifies the requirements for ancillary data products in the TRMM release (Release A) of EOSDIS.~~ Later versions of this document will update the list of required ancillary data products as necessary for subsequent releases of EOSDIS.

ECS will initiate the polling interface at operator selected intervals. The nominal polling frequency will be twice the frequency with which the ancillary data files are updated and is a

configurable parameter. ~~The frequency of the polling will be a configurable parameter based upon the frequency of the update of the data sets, as defined below.~~ ECS will use the file creation date information in the ftp file listing to identify updated data sets. ECS and NESDIS will coordinate which subdirectories on the NESDIS Data Delivery Server are used to stage this data when this data becomes available. The internet address of the NESDIS Data Delivery Server is TBD-11.

### 5.2.3.1 Vegetation Index

The Third Generation Global Vegetation Index data products ~~These vegetation index data~~ are part of the NOAA Polar-orbiting Operational Environmental Satellite (POES) Series Advanced Very High Resolution Radiometer (AVHRR) data. The vegetation index contains composites of the normalized vegetation index, AVHRR channels 1, 2, 4, and 5, quality/cloud data, solar zenith angles, and scan angles. These data are mapped to Plate Carree projection with a resolution of 16 km. The Plate Carree maps data from 75 deg N to 55 deg S.

File Names: T96126C1 ~~DPS.GVI.PCWMAP.NVIWEKLY~~

T96126C2

T96126C4

T96126C5

T96126QC

T96126SC

T96126SZ

T96126VI

Subdirectory: TBD-12

File Size: 2.3 MB each

Frequency: 1 set per week

Release: A/B

Ingesting DAAC: LaRC

The format of these data is defined in Global Vegetation Index User's Guide. The metadata associated with ~~that will be extracted from the~~ these data are defined in the same document.

### 5.2.3.2 Aerosol Weekly 100km Analyzed Field File

The Aerosol Weekly 100km Analyzed Field File are produced from the NOAA POES Series AVHRR data and contains total aerosol optical thickness retrievals calculated from channel 2 albedo observations. The aerosol data provides a global 1 degree map of aerosol optical thickness based on a composite of one week's worth of data.

File Name: NSS.PSATAVST.SST.TSTkm100

Subdirectory: TBD-12

File Size: 1.4 MB

Frequency: 1 per week

Release: A/B

Ingesting DAAC: LaRC

The format of these data is defined in the NOAA NESDIS Environmental Products Data Set Format Description Notebook maintained by the NOAA NESDIS Office of Satellite Data Processing and Distribution. The metadata that will be extracted from these data are defined in the same document.

### **5.2.3.3 Snow/Ice Cover (Navy Algorithm)**

The Snow/Ice Cover data is based on the Defense Meteorological Sensing Platform (DMSP) Special Sensor Microwave/Imager (SSM/I) data. NESDIS receives this data from the Fleet Numerical Meteorological Operations Center (FNMOC) and generates 1/8th mesh, 512x512, polar stereographic grids. These grids, referred to as Environmental Data Record (EDR) Master Maps are updated in near real-time as NESDIS receives new data from FNMOC. There is one file per hemisphere for each of the two operational DMSP satellites. Each EDR Master Map file contains multiple image maps including one for Snow Depth and one for Sea Ice Concentration.

File Names: COM.SPPROD.F10EDRSH  
 COM.SPPROD.F10EDRNH  
COM.SPPROD.F13EDRSH COM.SPPROD.F11EDRSH  
COM.SPPROD.F13EDRNH COM.SPPROD.F11EDRNH

Subdirectory: TBD-12

File Size: 10.5 MB each

Frequency: One set every 6 hours

Release: A/B

Ingesting DAAC: LaRC

The format of these data is defined in the Master Map Microwave Derived Products (EDR) Interface Control Document authorized by Hughes STX and maintained by the NOAA NESDIS Office of Satellite Data Processing and Distribution. The metadata that will be extracted from these data are defined in the same document.



#### 5.2.3.4 Layer/Level Ozone

The ozone data are generated from NOAA POES Series Solar Backscattered Ultraviolet Radiometer/Version 2 (SBUV/2) and includes global data. The ozone data maps, on a global scale, total ozone concentrations and the vertical distribution of ozone in the earth's atmosphere.

File Name: PRD.OZONE.MPM1OP  
PRD.OZONE.MPM3OP

Subdirectory: TBD-12

File Size: 1.7 MB each ~~4 MB~~

Frequency: 1 set per day

Release: A/B

Ingesting DAAC: LaRC

The format of these data is defined in SBUV/2 User's Guide maintained by the NOAA NESDIS Office of Satellite Data Processing and Distribution. The metadata associated with ~~that will be extracted from~~ these data granule are defined in the same document.

#### 5.2.3.5 Total Ozone Concentration

In Release B, ECS will acquire the total ozone concentration data generated from the NOAA POES Series High Resolution Infrared Radiation Sounder/Version 2 (HIRS/2). The HIRS/2 instrument is a step-scanned multi-channel spectrometer with 20 channels. The instrument has a resolution of 17 km at nadir. The "packed" level 1B data include all 20 channels at 13 bit precision with time tags, Earth location and calibration information. Channel 9 provides the total ozone concentration measurements.

File Name: NSS.PSAT.TOV.S.DSD3S1 ~~PRD.TOV.S.DSD3S1~~  
NSS.PSAT.TOV.S.DSD3S2 ~~PRD.TOV.S.DSD3S2~~

Subdirectory: TBD-12

File Size: 42.5 MB/day

Frequency: One set per day ~~Every 102 minutes (every orbit)~~

Release: B

Ingesting DAAC: NSIDC

The format of these data is TBD-13 ~~defined in the NOAA Polar Orbiter Data Users Guide~~. The metadata associated with ~~that will be extracted from~~ these data granule are defined in the same document.

#### 5.2.3.6 Spacecraft Schedules

ECS has not identified any need for NOAA Spacecraft Schedules at this time.

### 5.2.3.7 Algorithm Packages

ECS has not identified any need for NOAA Algorithm Packages at this time.

## 5.2.4 Interface Management

### 5.2.4.1 Schedule Adjudication

ECS and NESDIS will coordinate via telephone for the explanation and resolution of ancillary data delivery scheduling conflicts.

### 5.2.4.2 Network Management Information Exchange

Network management information will be provided by EBnet per the Interface Control Document Between the EOSDIS Backbone Network (EBnet) and the Distributed Active Archive Center (DAAC) and the TBD-7 documentation.

~~Additional information exchange with NESDIS in Release B is TBD-6.~~

## 5.3 ECS/NOAA Data Centers Data Flows

The purpose of the interface between the ECS and the NOAA Data Centers is to facilitate ECS access to data held at those centers. To support this ECS will receive Advertising Information from the Data Centers.

The Advertising Information is sent from the Data Centers to the ECS. Its purpose is to provide information sufficient to allow an ECS user to locate data and services located at the Data Centers. The ECS Advertising Service will utilize HTML protocols and will accept advertisements via an interactive HTML -form based interface.

A Data Center operator will be able to initiate an ECS Advertising Service session and link to the Advertisement Submission Form. From this form, the operator will be able to submit new advertisements or modify existing advertisements. The operator will provide information such as the description of the product, service, or service provider being advertised and information on access restriction, pricing, and copyright limitation. Product descriptions will include items such as temporal and geographic coverage, processing level, sensor, and parameter inputs. The name, address, phone numbers, and e-mail address to contact regarding the advertisement will also be entered. The operator may also submit graphical icons or logos, and Universal Reference Location (URL) links.

When the operator presses the submit button, the contents of the form will be assembled into a data block of the form:

action?name=value&name=value&name=value

where 'name' is the title of an input field on the form and 'value' is the information entered. This data block is posted to the Advertising Service URL where it is processed.

ECS will receive the advertisement and, after reviewing the advertisement, will send the Data Center operator via e-mail either a confirmation that the advertisement has been posted to the Advertising Service or a statement that the advertisement has been rejected and the reason for the rejection. ~~after reviewing and approving the advertisement, will send the SAA operator a confirmation via e-mail that the advertisement has been posted to the Advertising Service.~~

## **5.4 ECS/NCEP NMC Data Flows**

ECS will acquire data sets from the NCEP NMC via the GSFC DAAC. The interface between the GSFC DAAC and ECS for transfer of NCEP NMC data is described in the ICD Between ECS and the GSFC DAAC.

## Appendix A. Work-off Plan

ICD Issue #	ICD Para. #	Issue Priority*	ICD Issue Type - Description	Work-off Plan Task(s)	Projected Resolution Date	<u>Risk Assessment**</u>
1	4.1.2 4.2.2	A	<b>TBD</b> - EBnet is developing ICDs with connected sites, but these ICDs have not yet been finalized.	Work is in progress. When the EBnet ICD has been completed, it will be referenced.	Completed	
2	4.5.3	B	<b>TBD</b> - ftp File Listing Content definition	Obtain File Listing Format from NOAA	Completed	
3	5.2.1.2	A	<b>TBS</b> - User authentication protocol between ECS and the V0 system is currently undefined	This issue will be worked as part of the V0 ICD. The plan is to obtain agreement between ESDIS, the DAACs and ECS on this protocol.	Completed	
4	5.2.3.1 5.2.3.2 5.2.3.3 5.2.3.4	A	<b>TBR</b> - The definition and completeness of the ancillary data format and metadata information must be reviewed and validated	Obtain complete set of documentation on these data from NOAA by early August. ECS will review documentation and coordinate with NOAA to obtain any additional information needed	Completed  Completed	
5	5.2.1.3	A	<b>TBR</b> - The definition of how the ECS Client in Release B will interact with the SAA Guide is still in work.	ECS will continue to work this as part of the normal design process between IDR and CDR.	Completed	
6	5.2.4.2	A	<b>TBD</b> - Define what additional management data exchange is necessary	ECS will continue to work this as part of the normal design process between IDR and CDR.	<u>Completed</u>	
7	4.1.2 4.2.2 5.2.4.2	C	<b>TBD</b> - Receive as-built documentation reflecting EBnet/NOAA interface from ESDIS	<u>ECS is coordinating with ESDIS on this task. The documents have been sent via mail.</u>	3/15/96 <u>Completed</u>	1. Difficulty in maintaining existing EBnet-NOAA interface 2. Same

<u>8</u>	<u>5.2.3.1</u>	<u>A</u>	<b>TBD</b> - Define name of <u>vegetation index metadata file</u>	ECS is coordinating this task with NOAA and expects to receive the file name within the week.	<u>3/15/96</u> <u>Completed</u>	1. Risk of late establishing of interface. 2. Same
<u>9</u>	<u>4.5.3</u>	<u>A</u>	<b>TBD</b> - Define method to <u>avoid ingesting partially written files.</u>	ECS is coordinating with NOAA to define a method to ensure integrity of ingested files.	<u>4/5/96</u> <u>Completed</u>	1. Risk of ingesting corrupted files. 2. Same
<u>10</u>	<u>4.5.3</u>	<u>B</u>	<b>TBD</b> - Define format of <u>ls-l file listing</u>	ECS is coordinating with NOAA to obtain this information.	<u>6/7/96</u>	1. No risk. 2. Risk of delaying development of interface.
<u>11</u>	<u>5.2.3</u>	<u>B</u>	<b>TBD</b> - Define internet <u>address of SAA Data Delivery Server</u>	ECS is coordinating with NOAA to obtain this information.	<u>6/28/96</u>	1. No risk. 2. Risk of delaying development of interface.
<u>12</u>	<u>5.2.3.1</u> <u>5.2.3.2</u> <u>5.2.3.3</u> <u>5.2.3.4</u> <u>5.2.3.5</u>	<u>B</u>	<b>TBD</b> - Define <u>subdirectories for each data product</u>	ECS is coordinating with NOAA to obtain this information.	<u>6/28/96</u>	1. No risk. 2. Risk of delaying development of interface.
<u>13</u>	<u>5.2.3.5</u>	<u>A</u>	<b>TBD</b> - Define format of <u>Total Ozone Concentration Data</u>	ECS is coordinating with NOAA to obtain this information.	<u>6/12/96</u>	1. No risk 2. Risk of delaying development of interface.

\* Issue Priority Definition:

A = Design impact. E.g., unresolved interface.

B = Minimal design impact. E.g., content or format of a specific field unresolved.

C = No design impact - administrative detail. E.g., reference document # not available.

\*\* Risk Assessment Definition:

1 - Risk if issue is not resolved by CDR

2 - Risk if issue is not resolved by projected resolution date

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## Abbreviations and Acronyms

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ADC	Affiliated Data Center
AVHRR	Advanced Very High Resolution Radiometer
CCB	Configuration Control Board
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CSMS	Communications and System Management Segment
DAAC	Distributed Active Archive Center
DARPA	Defense Advanced Research Projects Agency
DCN	document change notice
DID	Data Item Description
DMSP	Defense Meteorological Sensing Platform
EBnet	EOS Backbone Network
ECS	EOSDIS Core System
EDOS	EOS Data Operations Systems
EDR	Environmental Data Record
EOC	EOS Operations Center
EOS	Earth Observing System
EOSDIS	EOS Data and Information System
ESDIS	Earth Science Data and Information System
ESN	EOSDIS Science Network
FNMOCC	Fleet Numerical Meteorological Operations Center
ftp	File Transfer Protocol
<u>GOES</u>	<u>Geostationary Operational Environmental Satellite</u>
GPCC	Global Precipitation Climatology Center
GPCP	Global Precipitation Climatology Project
GPI	Global Precipitation Index

HIRS/2	High Resolution Infrared Radiation Sounder Version 2
HTML	HyperText Markup Language
HTTP	HyperText Transfer Protocol
ICD	Interface Control Document
IDR	Incremental Design Review
IMS	Information Management System
IP	Internet Protocol
IRD	Interface Requirements Document
LaRC	Langley Research Center
MOU	Memorandum of Understanding
NASA	National Aeronautics and Space Administration
NESDIS	National Environmental Satellite, Data, and Information Service
NCDC	National Climatic Data Center (NOAA)
<u>NCEP</u>	<u>National Center for Environmental Prediction (NOAA)</u>
NGDC	National Geophysical Data Center (NOAA)
<del>NMC</del>	<del>National Meteorological Center (NOAA)</del>
NOAA	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Center (NOAA)
<u>NSIDC</u>	<u>National Snow and Ice Data Center</u>
ODL	Object Description Language
OSDPD	Office of Satellite Data Processing and Distribution
POES	Polar-orbiting Operational Environmental Satellite
RACF	Resource Access Control Facility
SAA	Satellite Active Archive
SBUV/2	Solar Backscattered Ultraviolet Radiometer, Version 2
SDPS	Science Data Processing Segment
SSM/I	Special Sensor Microwave/Imager
TCP	Transmission Control Protocol
TBR	To Be Reviewed



TBD	To Be Determined
TBS	To Be Supplied
TRMM	Tropical Rainfall Measuring Mission
V0	Version 0
WAIS	Wide Area Information Server